

Data Science Certification Training – R Programming

Become an expert in data analytics using the R programming language in this data science certification training course at Pro Academy. You'll master data exploration, data visualization, predictive analytics and descriptive analytics techniques with the R language.

With this Pro Academy data science course, you'll get hands-on practice by implementing various real-life, industry-based projects in the domains of healthcare, retail, insurance, finance, airlines, music industry, and unemployment.

Lesson 01 - Introduction to Business Analytics

1.1 Introduction

1.2 Objectives

1.3 Need of Business Analytics

1.4 Business Decisions

1.5 Introduction to Business Analytics

1.6 Features of Business Analytics

1.7 Types of Business Analytics

1.8 Descriptive Analytics

1.9 Predictive Analytics

1.10 Prescriptive Analytics

1.11 Web Analytics

1.12 Business Decisions

1.13 Business Intelligence (BI)

1.14 Data Science

1.15 Importance of Data Science

1.16 Big Data

1.17 Analytical Tools

Lesson 02 - Introduction to R

2.1 Introduction

2.2 Objectives

2.3 An Introduction to R

2.4 Comprehensive R Archive Network (CRAN)

2.5 Cons of R

2.6 Companies Using R

2.7 Understanding R

2.8 Installing R on Operating System

2.9 IDEs for R

2.10 Installing RStudio on Operating System

2.11 Steps in R Initiation

2.12 Benefits of R Workspace

2.13 Setting the Workplace

2.14 Functions and Help in R

2.15 Installing an R Package

2.16 Install and Load a Package

Lesson 03 - R Programming

3.1 Introduction

3.2 Objectives

3.3 Operators in R

3.4 Arithmetic Operators

3.5 Demo - Perform Arithmetic Operations

3.6 Use Arithmetic Operations

3.7 Relational Operators

3.8 Use Relational Operators

3.9 Logical Operators

3.10 Use Logical Operators

3.11 Assignment Operators

3.12 Use Assignment Operator

3.13 Conditional Statements in R

3.14 Ifelse() Function

3.15 Use Conditional Statements

3.16 Switch Function

3.17 Use Switch Function

3.18 Loops in R

3.19 Break Statement

3.20 Next Statement

3.21 Use Loops

3.22 Scan() Function

3.23 Running an R Script

3.24 Running a Batch Script

3.25 R Functions

3.26 Use R Functions

3.27 Use Commonly Used Functions

3.28 Use String Functions

Lesson 04 - R Data Structure

4.1 Introduction

4.2 Objectives

4.3 Types of Data Structures in R

4.4 Vectors

4.5 Create a Vector

4.6 Scalars

4.7 Colon Operator

4.8 Accessing Vector Elements

4.9 Matrices

4.10 Accessing Matrix Elements

4.11 Create a Matrix

4.12 Arrays

4.13 Accessing Array Elements

4.14 Create an Array

4.15 Data Frames

4.16 Elements of Data Frames

4.17 Create a Data Frame

4.18 Factors

4.19 Create a Factor

4.20 Lists

4.21 Create a List

4.22 Importing Files in R

4.23 Importing an Excel File

4.24 Importing a Minitab File

4.25 Importing a Table File

4.26 Importing a CSV File

4.27 Read Data from a File

4.28 Exporting Files from R

Lesson 05 - Apply Functions

5.1 Introduction

5.2 Objectives

5.3 Types of Apply Functions

5.4 Apply() Function

5.5 Use Apply Function

5.6 Lapply() Function

5.7 Use Lapply Function

5.8 Sapply() Function

- 5.9 Use Supply Function
- 5.10 Tapply() Function
- 5.11 Use Tapply Function
- 5.12 Vapply() Function
- 5.13 Use Vapply Function
- 5.14 Mapply() Function
- 5.15 Dplyr Package - An Overview
- 5.16 Dplyr Package - The Five Verbs
- 5.17 Installing the Dplyr Package
- 5.18 Functions of the Dplyr Package
- 5.19 Functions of the Dplyr Package - Select()
- 5.20 Use the Select Function
- 5.21 Functions of Dplyr-Package - Filter()
- 5.22 Use the Filter() Function
- 5.23 Use Select Function
- 5.24 Functions of Dplyr Package - Arrange()
- 5.25 Use Arrange Function
- 5.26 Functions of Dplyr Package - Mutate()
- 5.27 Functions of Dplyr Package - Summarise()
- 5.28 Use Summarise Function

Lesson 06 - Data Visualization

6.1 Introduction

6.2 Objectives

6.3 Graphics in R

6.4 Types of Graphics

6.5 Bar Charts

6.6 Creating Simple Bar Charts

6.7 Editing a Simple Bar Chart

6.8 Create a Bar Chart

6.9 Editing a Simple Bar Chart

6.10 Create a Stacked Bar Plot and Grouped Bar Plot

6.11 Pie Charts

6.12 Editing a Pie Chart

6.13 Create a Pie Chart

6.14 Histograms

6.15 Creating a Histogram

6.16 Kernel Density Plots

6.17 Creating a Kernel Density Plot

6.18 Demo - Create Histograms and a Density Plot

6.19 Create Histograms and a Density Plot

6.20 Line Charts

6.21 Creating a Line Chart

6.22 Box Plots

Lesson 07 - Introduction to Statistics

7.1 Introduction

7.2 Objectives

7.3 Basics of Statistics

7.4 Types of Data

7.5 Qualitative vs. Quantitative Analysis

7.6 Types of Measurements in Order

7.7 Nominal Measurement

7.8 Ordinal Measurement

7.9 Interval Measurement

7.10 Ratio Measurement

7.11 Statistical Investigation

7.12 Statistical Investigation Steps

7.13 Normal Distribution

7.14 Example of Normal Distribution

7.15 Importance of Normal Distribution in Statistics

7.16 Use of the Symmetry Property of Normal Distribution

7.17 Standard Normal Distribution

7.18 Use Probability Distribution Functions

7.19 Distance Measures

7.20 Distance Measures - A Comparison

7.21 Euclidean Distance

7.22 Correlation

7.23 Correlation Measures Explained

7.24 Dist() Function in R

Lesson 08 - Hypothesis Testing I

8.1 Introduction

8.2 Objectives

8.3 Hypothesis

8.4 Need of Hypothesis Testing in Businesses

8.5 Null Hypothesis

8.6 Alternate Hypothesis

8.7 Null vs. Alternate Hypothesis

8.8 Chances of Errors in Sampling

8.9 Types of Errors

8.10 Contingency Table

8.11 Decision Making

8.12 Critical Region

8.13 Level of Significance

8.14 Confidence Coefficient

8.15 Critical Value Using Normal Probability Table

Lesson 09 - Hypothesis Testing II

9.1 Introduction

9.2 Objective

9.3 Parametric Tests

9.4 Z-Test

9.5 Z-Test in R

9.6 T-Test

9.7 T-Test in R

9.8 Use Normal and Student Probability Distribution Functions

9.9 Testing Null Hypothesis

9.10 Objectives of Null Hypothesis Test

9.11 Three Types of Hypothesis Tests

9.12 Hypothesis Tests About Population Means

9.13 Decision Rules

9.14 Hypothesis Tests About Population Means

9.15 Hypothesis Tests About Population Proportions

9.16 Chi-Square Test

9.17 Steps of Chi-Square Test

9.18 Important Points of Chi-Square Test

9.19 Degree of Freedom

9.20 Chi-Square Test for Independence

9.21 Chi-Square Test for Goodness of Fit

9.22 Chi-Square Test for Independence

9.23 Chi-Square Test in R

9.24 Use Chi-Squared Test Statistics

9.25 Introduction to ANOVA Test

9.26 One-Way ANOVA Test

9.27 The F-Distribution and F-Ratio

Lesson 10 - Regression Analysis

10.1 Introduction

10.2 Objectives

10.3 Introduction to Regression Analysis

10.4 Use of Regression Analysis - Examples

10.5 Types Regression Analysis

10.6 Simple Regression Analysis

10.7 Multiple Regression Models

10.8 Simple Linear Regression Model

10.9 Simple Linear Regression Model Explained

10.10 Perform Simple Linear Regression

10.11 Correlation

10.12 Correlation Between X and Y

10.13 Find Correlation

10.14 Method of Least Squares Regression Model

Lesson 11 - Classification

11.1 Introduction

11.2 Objectives

11.3 Introduction to Classification

11.4 Examples of Classification

11.5 Classification vs. Prediction

11.6 Decision Tree

11.7 Basic Algorithm for a Decision Tree

11.8 Statistical Measure - Information Gain

11.9 Calculating Information Gain

11.10 Calculating Information Gain for Continuous-Value Attributes

11.11 Nearest Neighbor Classifiers

Lesson 12 - Clustering

12.1 Introduction

12.2 Objectives

12.3 Introduction to Clustering

12.4 Clustering vs. Classification

12.5 Use Cases of Clustering

12.6 Clustering Models

12.7 K-means Clustering

12.8 K-means Clustering Algorithm

12.9 Pseudo Code of K-means

12.10 K-means Clustering Using R

12.11 Perform Clustering Using K-means

12.12 Hierarchical Clustering

12.13 Hierarchical Clustering Algorithms

Business Analytics with Excel

Lesson 01 - Introduction to Business Analytics

Lesson 02 - Formatting Conditional Formatting and Important Functions

2.1 Introduction

2.2 Custom Formatting Introduction

2.3 Custom Formatting Example

2.4 Conditional Formatting Introduction

2.5 Logical Functions

2.6 Lookup and Reference Functions

2.7 VLOOKUP Function

2.8 HLOOKUP Function

2.9 MATCH Function

2.10 INDEX and OFFSET Function

2.11 Statistical Function

2.12 SUMIFS Function

2.13 COUNTIFS Function

2.14 PERCENTILE and QUARTILE

2.15 STDEV, MEDIAN and RANK Function

Lesson 03 - Analyzing Data with Pivot Tables

3.1 Introduction

3.2 Pivot Table Introduction

3.3 Grouping in Pivot Table

3.4 Custom Calculation

3.5 Calculated Field and Calculated Item

3.6 Calculated Field Example

3.7 Calculated Item Example

3.8 Slicer Intro

3.9 Creating a Slicer

Lesson 04 - Data Analysis Using Statistics

4.1 Introduction

4.2 Moving Average

4.3 Hypothesis Testing

4.4 ANOVA

4.5 Covariance

4.6 Correlation

4.7 Regression